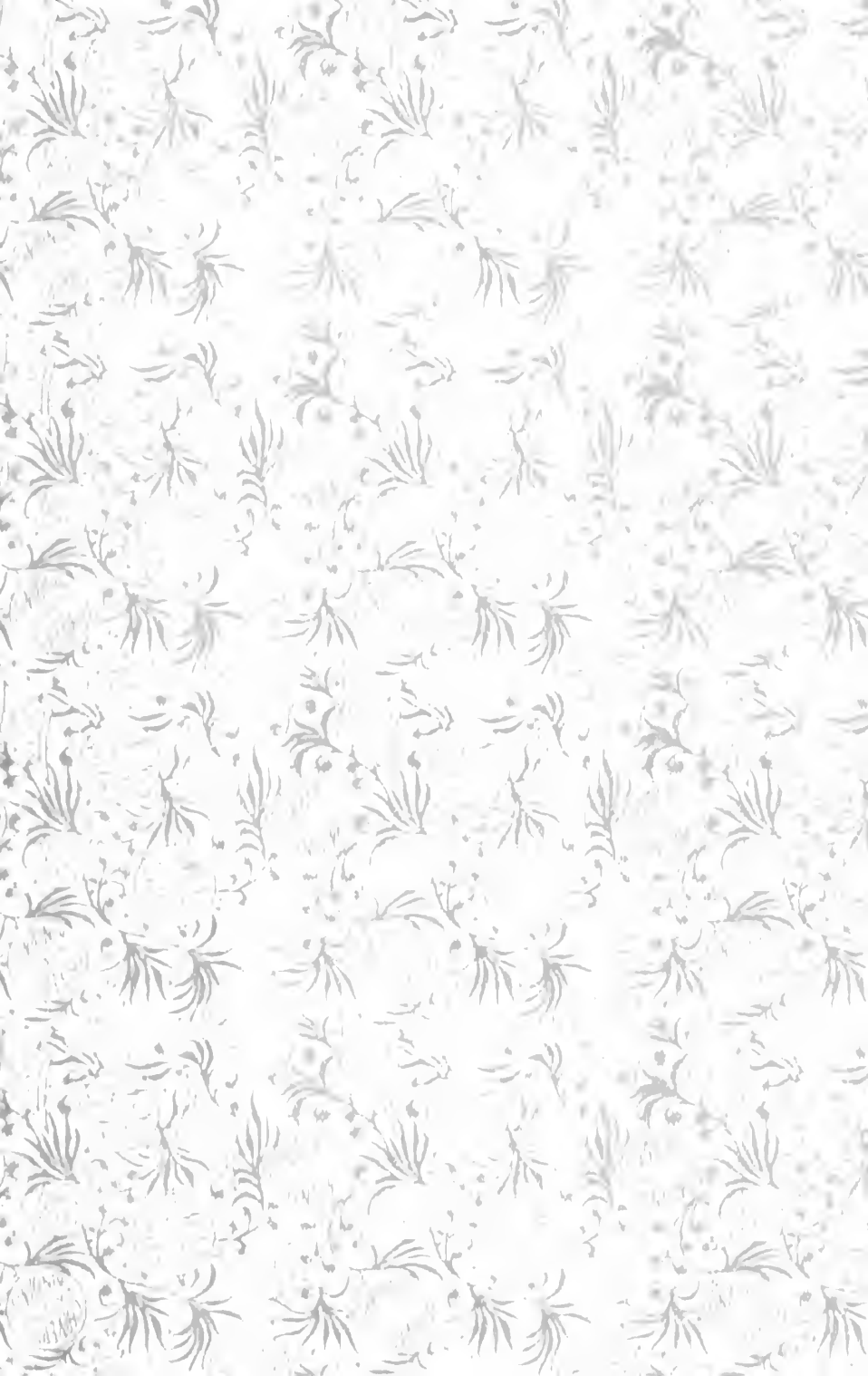


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BROOKLYN BOTANIC GARDEN
LEAFLETS

SERIES XX

BROOKLYN, N. Y., MARCH 16, 1932

No. 1

MARCH IN YOUR GARDEN

Our unstable weather is liable to give the gardener the "jitters" during this month. He is constantly harassed by the problem of **How to Handle the Winter Covering.** whether or not to remove the winter covering of his roses, bulbs, evergreens, and semi-hardy plants in general. It is wise to go slowly in removing this covering, taking off a little at a time and keeping it handy so it may be replaced in case of a sudden return of winter. As a matter of fact, in a normal winter, when the ground is likely to be frozen to a considerable depth, it might be expedient to apply covering on incompletely established evergreens during this month. The high, drying winds and bright sunshine are capable of causing much damage when the ground is frozen or cold, and the roots, in consequence, inactive.

If the ground is in a workable condition, (that is, unfrozen and dry enough so that it does not stick to the tools used) seeds of hardy **Seeding of Hardy Annuals.** annuals may be sown towards the middle of the month. Such favorites as Sweet Peas, Cornflower, and Poppies give a better display when planted early, so that their roots become established before hot weather comes.

Towards the end of the month, if conditions are favorable, new lawns may be seeded and old lawns receive attention in the matter of **Treatment of Lawns.** raking off the coarser parts of the manure applied in the fall (if any) and scattering it among the shrubs or perennials to be forked in later. Re-seeding bald patches, first loosening the soil to form a suitable seed bed, and rolling is also in order.

Serious thought should be given to the matter of dormant spraying. Trees and shrubs infested with scale insects should be thoroughly **Spraying.** sprayed with commercial lime-sulphur, 1-9, or with one of the many brands of miscible oil used according to the directions of the manufacturer. Choose a warm, windless day for this work and try to get through early in the day so that the spray may dry before there is any possibility of its freezing. As implied by the name "dormant," sprays must be applied while plants are dormant and not after growth has started.

Deciduous trees and shrubs may be planted whenever the ground is workable. Before planting, trim broken roots with a sharp knife so as to leave a smooth surface. Make the hole large enough to receive the roots without cramping them, **Planting of Deciduous Trees and Shrubs.** cover with fine soil and pack firmly with the feet or tamping stick. Do not set the tree or shrub any deeper than it was when growing in the nursery, as shown by the soil line. A mulch of litter on the soil over the roots will help to conserve moisture. The coarse material raked from the lawn is serviceable for this purpose. Do not forget to prune the branches to compensate for loss of roots occasioned by transplanting. The amount to cut off is determined by the subject (some plants will stand rough treatment better than others) and the amount of injury to the roots. On the average it is desirable to cut off about one-third of the top growth. Make your cuts with a view to improving the shape of the bush or tree, having in mind the desirability of maintaining so far as is possible its natural form.

If your soil is poor, improve it before planting. The depth and area affected by this operation is determined by the ultimate size the plant you are setting out is likely to attain and your willingness to take pains to get best results. Provide a minimum of six square feet of soil, improved by mixing well decayed manure with it to a depth of 15 to 18 inches. When planting do not allow the manure to come in contact with the roots.

The operation of pruning may be carried out on many of our shrubs during March. If folks concerned with gardening operations would give a little thought to the principles of pruning, a little thought to the location and time of development of blossom buds, there would be fewer badly mutilated shrubs to distress the lover of beauty. The not uncommon practice of "pruning," during the winter, with the hedge shears, such early blossoming shrubs as Forsythia, which prevents them from flowering and destroys completely the natural shape of the bush, would then be a thing of the past.

Pruning in General. Before pruning any shrub, learn how and where the blossom buds are produced. Early blooming plants such as Peach, Forsythia and Lilac produce their flower buds largely on shoots that grew the preceding year. Any indiscriminate cutting during the dormant season therefore must result in the removal of flower buds. Such shrubs are best pruned at or immediately after flowering time.

Later blooming plants such as Grape, *Hibiscus syriacus*, and roses of the Hybrid Perpetual and Hybrid Tea groups bear their flowers on growth of the current season, which, as a rule, originates from growth of the preceding year. Our aim in pruning shrubs of this class is to prune back one-year-old branches, to prevent the bush from attaining an unwieldy size, and to lessen the struggle for existence between the branches of the individual and thus improve the quality of the

flowers. As an example: We shall assume that in the spring the average rose bush has 100 or more growth buds, all of which are capable of being developed into branches. As a matter of fact, not every one of these buds will so develop, because those toward the top of the bush will "hog" the supply of sap with the result that some of the buds lower down will fail to develop. But even allowing for this, too many of the buds will develop, resulting in so much competition that the branches are weak, and the flowers are small and wanting in quality. Many of the branches will fail to produce flowers at all, and some will start to grow only to be crowded out and killed by the remainder. Now supposing, in the spring, instead of leaving this rose bush unpruned, we thin out enough of the weak branches and old branches, and prune back the stronger canes, so that between 20 and 30 growth-buds are left on the plant, then the whole vigor of the root can be concentrated on these buds instead of being dissipated over a large number of buds. Furthermore, the buds that are left are not too crowded, and, hence, have the opportunity to develop into strong shoots bearing large blossoms.

In a normal season, one would say get busy at pruning the Hybrid Tea roses just as soon as the buds have started to grow. But such advice does not apply this year, for here in New York some of the Hybrid Teas had as much as an inch or more of new growth in early February, which is far too early to prune roses. Wait until you are reasonably sure the weather is settled and no more hard freezes are to be expected.

The first thing to do is to cut out all dead wood and any weak and spindling branches arising from the base of the plant. Do not leave any stubs—always cut close to a main branch and cut clean. Next, look over the bush carefully and remove any diseased branches, cutting them out completely. Most canes that are more than one year old should also be cut out. When this has been done, the chances are that the remaining canes will not be too thickly placed for best results.

Now we come to the operation of pruning the canes that are left. If your object in pruning is to obtain a few blooms of the finest or "exhibition" quality, the plants should be cut back severely, so that only three eyes are left on each cane, and not more than three or four canes to each bush. If you desire rather to produce more good flowers for cutting, the pruning should be moderate, and the canes should be cut back to six or eight buds. But if you wish a large number of flowers for garden display, prune lightly, removing only the tips of the canes.

When making your cuts have in mind the future shape of the bush and cut to a bud pointing in the direction that you wish it to develop. In general, cut to a bud pointing outwards, for it is desirable to keep the center of the bush open. If the cut is made too far from the bud an unsightly stub is left. If too close, the bud may die.

In the case of the Hybrid Perpetuals, the procedure is much the same, except that a bed of Hybrid Perpetuals, when pruned, would appear to have twice as much growth left as a bed of Hybrid Teas pruned on the same principle. In some cases, it may be desirable, instead of pruning back so severely, to adopt a method that is commonly used in England—that of pegging down to the ground (so as to form an arch) the long canes of the preceding year, thus forcing into growth the buds along the whole length of the cane. This, of course, gives an enormous quantity of flowers, but not much in the way of quality.

Roses belonging in the Polyantha, Bourbon, and China groups need very little pruning beyond the removal of dead and worn-out wood.

Other Roses. The same is true of climbing, rambler, and pillar roses *at this time of the year*. The climbing roses of the large-flowered type, such as Dr. Van Fleet and Breeze Hill, may, at this time, be pruned to keep them within bounds and to remove old, worn-out wood. Rambler roses—the small bunch-flowered type—of course, will have to be pruned during the summer immediately after flowering, and any pruning in spring is restricted to cutting back, very lightly, the unripe tips of the canes. Pillar roses and climbing Hybrid Teas, as a rule, need but little pruning, other than the removal of old worn-out wood and spindling branches.

MONTAGUE FREE.

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A popular survey of botanical problems and results. 136 pages, 76 illustrations. Bound in stiff paper. 75 cents.

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No. 6. *Japanese Potted Trees (Hachinoki).* By Bunkio Matsuki. 11 pages, 11 illustrations. 40 cents.

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Address

THE SECRETARY, BROOKLYN BOTANIC GARDEN
1000 Washington Ave., Brooklyn, N. Y., U. S. A.

BROOKLYN BOTANIC GARDEN
LEAFLETS

SERIES XX

BROOKLYN, N. Y., APRIL 13, 1932

No. 2

APRIL IN YOUR GARDEN

April is probably the most important month of the year for planting in the garden. Trees, shrubs, perennials, and seeds of almost every kind and character may be planted sometime during this month.

No time should be lost in setting out the deciduous trees and shrubs, even though it is safe to plant them right up until the time when the buds are starting into growth. Roses and other woody plants that start growth early, in particular, should be planted as soon as possible. When trees and shrubs are received from the nursery, they should not be left lying around, so that the roots dry out. If it is not possible to plant them immediately, they should be "heeled in" by digging a trench in the earth and throwing soil over the roots and packing it down so that all the roots are in contact with moist earth. If, when the plants are received from the nursery, the wood appears to be shriveled, it is a good plan to bury the whole plant in moist earth for a week or so in order to plump up the wood. If it is at all possible, choose a cloudy, moist day for planting, as, under these conditions, the exposed roots dry out much less rapidly. If you have to plant on a drying day, use some measure or other to prevent the roots from drying out. This may consist of keeping the roots covered with wet burlap until you are ready to place the plants in their permanent locations, or, in the case of small plants, they may be kept moist by carrying them with their roots in a pail of water.

Evergreens also may be planted during this month, but there is no need for any special hurry. The planting season for this group may be extended well into May. Evergreens are usually dug up with a ball of earth about their roots which is wrapped in burlap. When planting these "balled and burlapped" plants, they should be set in the holes without removing the burlap. Make sure that the plant is set at the right depth and then untie the burlap and if it is not too bulky tuck it in at the bottom of the hole. If too bulky, a portion may be cut away. The object of handling the plants in this manner is to avoid unnecessary disturbance of the roots.

Practically all of the hardy perennials may be planted now, with the exception of Peonies. Hardy Chrysanthemums, perennial Asters, and other plants of a similar nature may be dug up and divided at this time, using for replanting the strongest shoots which are formed at the outside of the clumps. We find here at the Botanic Garden that we get best results with our hardy Chrysanthemums and perennial Asters by raising them anew from cuttings every year, and this is a good plan to follow for those who have greenhouse and cold frame facilities.

Treatment of Perennials.

During April, cuttings may be taken of any of the rarer perennial plants that you may wish to propagate. These cuttings consist of the young shoots that come up from the base of the plant. They should be taken off when they are two or three inches long, making the cut below the surface of the soil. These cuttings should be inserted in sand in a shaded cold frame. They will make strong plants for setting out in the fall for blossoming the following year. Plants that may with advantage be treated in this manner are perennial Phlox and Delphinium.

Many people do not realize that thinning of perennials may be practiced to advantage. Such plants as perennial Phlox, Chrysanthemum, Helenium, and perennial Aster produce shoots in such abundance that they become too crowded to produce best results. Surplus shoots should, therefore, be thinned out so as to give the remaining ones a better chance. This may be done when the shoots are long enough so that they may be grasped easily with thumb and finger and broken off.

Perennial beds or borders should be forked over, thus burying the manure that previously has been spread on the surface. Those portions of the garden reserved for annual plants should have the soil dug as deeply as possible, at the same time mixing a liberal quantity of well decayed manure with the soil.

Proceed with the seed planting of both flowers and vegetables. The hardy kinds, such as Sweet Peas, Cornflower, Poppies, Larkspur, and Sweet Alyssum should be planted as early in the month as possible, always remembering that seed planting should not be attempted except when the ground is in a friable condition. Half hardy annuals and tender annuals should not be planted until the end of the month, or the beginning of May.

Other Recommendations.

In order that there may be no bare ground in the garden after various spring bulbs have finished their display, it is a good plan to plant seeds of annuals in the soil occupied by those plants. Annuals suitable for this purpose are Portulaca, annual Phlox, and Sweet Alyssum (low-growing kinds). Annuals of medium height that can be used are Flowering Flax, Celosia, annual Baby's Breath, Caliopsis, and many others.

All coverings intended to protect plants over winter may now be removed with safety. The mulch of leaves that was placed over the roots of Rhododendrons and Azaleas in the fall should, however, be left in place. This will help to conserve moisture and keep the roots cool.

Tidy up generally, but do not carry your passion for tidiness to such extremes that you cut the grass where spring flowering bulbs are planted before their foliage has died down. The leaves of these bulbs are very important in the economy of the plant, for they manufacture food which is stored in the bulb to provide flowers for the following year. If the leaves are cut off before they have naturally withered, they do not have time to do this and the chances are the bulb will fail to flower and may even die.

There is still time to make new lawns and renovate old ones. The earlier this is done, the better are the chances for success, because it is very desirable that the grass have a chance to become thoroughly established before the hot and dry days of summer are upon us.

A start may now be made in planting summer flowering bulbs, corms and tubers. Bulbs of Lilies that were unavailable in the fall should be planted at the earliest possible moment: this group resents overmuch drying of the bulbs. Summer Hyacinths (*Galtonia*), too, may be planted early. The first planting of Gladiolus corms should be made in April. These may be planted at intervals of three weeks or so until the second week in July in order to provide a succession of bloom.

When it begins to warm up and all danger of frost is past, Elephant-ear (*Colocasía*), Tigerflower (*Tigridia*), Tuberose (*Polianthes*), Madeira-vine (*Boussingaultia*), and others of a similar nature may be planted. Tuberous Begonia should be started in flats or pots indoors to be set out in May.

The present is a good time to set out plants of the hardy Water Lilies. A large pool is not necessary in order to grow these beautiful plants. A half barrel sunk in the ground, with eight inches to a foot of good soil placed in the bottom and then filled with water, will provide adequate quarters for one of the smaller growing kinds. A layer of sand over the surface of the soil will prevent the water from becoming muddy, and a few gold-fish will dispose of any mosquito larvae should they make their appearance. In formal pools of concrete, stone, or brick, it is on the whole better to grow the Lilies in soil held in place by tubs or boxes rather than to cover the floor of the pool with soil. At least two cubic feet of soil should be provided for each Lily. Good varieties are: (white) "Marliac White," *odorata minor*—the latter well adapted for small pools; (pink) "Helen Fowler," "Rose Arey;" (red) "James Brydon;" (yellow) "Chromatella."

**Water
Lilies.**

MONTAGUE FREE.

NOTICES

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BROOKLYN BOTANIC GARDEN
LEAFLETS

SERIES XX

BROOKLYN, N. Y., MAY 4, 1932

NO. 3

MAY IN YOUR GARDEN

In the ideal world of the gardener, he will be allowed the month of May to enjoy his garden with mind unburdened with thoughts of the "bugs and bothers" that come along to injure his plants and harass him. But it is hardly necessary to add that this is not an ideal world: we are dealing with conditions as they exist and therefore must give a little thought to these troubles.

Just as soon as the foliage of our shade trees is fully developed, we may expect to find them attacked by various leaf-eating insects. The Elm Leaf Beetle in particular starts his dirty work early. Pests of this nature may be controlled by spraying the foliage with lead arsenate used at the rate of $1\frac{1}{2}$ pounds to 50 gallons of water.

**Insect
Pests.**

The materials necessary for combatting the sucking insects should be on hand so that there may be no delay when these pests first make their appearance. A standard contact insecticide useful in combatting most of the soft-bodied sucking insects is nicotine soap solution. This is used at the rate of $\frac{1}{2}$ pint nicotine sulfate and 2 pounds of soap, to 50 gallons of water.

A close watch should be kept on trees and shrubs for evidence of the work of wood borers. As soon as the excrement ("sawdust" or "frass") is noticed, search should be made for the insect responsible, which should then be dealt with, either by fishing it out, using a thin flexible wire bent into a small hook at the end, or by injecting a small quantity of carbon disulphide into the burrow and closing the orifice with putty, chewing gum, or something similar. Lilacs are very subject to these pests.

The rose garden may, with advantage, be sprayed with Bordeaux mixture just as soon as pruning is finished. This is to combat various fungous diseases that affect the rose. As a fungicide to be used in later applications after the leaves are fully developed, we prefer to use some form or other of "Massey Dust." This is dusting sulphur, 9 parts, and one part lead arsenate. We use a brand that is colored green, so that it causes no appreciable disfigurement of the foliage. "Massey Dust," if properly used, takes care of the dreaded "Black Spot," and, because of its arsenate content, destroys most leaf-eating insects.

**Spraying of
Roses.**

Seed sowing of half hardy and tender annuals may be carried out during this month. It is also a good time to plant seeds of the hardy perennials. Many authorities recommend August as the best month to do this, but early planting has one great advantage, in that one is practically certain of strong plants that are large enough to survive the winter without injury when set out in their permanent locations in the fall.

Sowing and Thinning.

Thinning of seedlings of annuals should be practiced before they are sufficiently crowded to injure each other. A cloudy day when the soil is fairly wet should, if possible, be chosen for this task, as, when performed under these conditions, there is much less likelihood that the remaining seedlings will suffer from the root disturbance that is sometimes inevitable in the process of thinning.

Some plants will now need attention in the matter of staking. Staking, when properly carried out, is an art in itself. The aim should be to adequately support the plants in such a way that the supports are unobtrusive but so that the natural habit of growth of the plant is maintained. Staking should always be done before the plants are toppled over by wind or rain. Such plants as peonies may be supported by placing over them, before they have finished their growth, a heavy wire or iron ring maintained at the desired height by three or four legs which are thrust into the ground. As the plants grow, they cover this support so that it is practically invisible. Many of the shorter plants with a somewhat sprawly habit may be supported by thrusting stout, twiggy growths in amongst them before they have completed their growth.

Staking.

Window boxes should be set in place and planted. Owing to the comparatively small bulk of soil contained in window boxes, it should be made rather rich, using, if possible, one-third rotted manure, to be supplemented later by complete commercial fertilizer. Use those subjects for furnishing the window box that have already proved their worth for this purpose. Such plants as Geranium, Dusty Miller, Petunia, Verbena are satisfactory, while for window boxes that do not get a great deal of sun, recourse may be had to Begonia, English Ivy, Wandering Jew, and ferns.

Window Boxes.

If you desire extra large peony blooms, the lateral buds which form on the shoots should be removed, leaving only the terminal bud to develop.

Other Recommendations. Pruning of early blossoming shrubs should be done as soon as their blossoming period is over.

Keep the surface soil of borders and beds cultivated in order to keep down weeds.

New lawns must not be allowed to suffer for lack of water, which should be applied in the form of a fine spray to avoid erosion of the soil. It is a good plan to roll the new lawn a day or two before the first mowing. This makes the soil firm about the grass roots and

lessens the danger of injuring them by the lawn mower. Use a light roller.

May is a favored month for the planting of evergreens. Hardy chrysanthemums that have been raised from cuttings should be set out at the first opportunity. Bedding plants, such as Begonia, Geranium, Ageratum and Canna, may be planted now. Be watchful to ensure that newly transplanted stock does not suffer from lack of water. In a previous LEAFLET, mention was made of the desirability of maintaining a mulch of light material over the roots of such stock.

House plants may be set out of doors, if so desired. The pots in which they are growing should be plunged in the soil so as to avoid too rapid drying out. In order to avoid trouble with the drainage, it is desirable to place a layer of coarse material, such as cinders, at the bottom of the hole before the pot is set in the ground. It is advisable to give these pots a twist once in a while during the season so as to discourage roots from forming outside the pot.

MONTAGUE FREE.

BROOKLYN BOTANIC GARDEN CALENDAR

MAY-JUNE, 1932

5th May, Thursday, 4:10 p. m. Lecture: Marine Life. For High School and Junior High School pupils. Prof. E. A. Martin.

10th May, Tuesday, 3:30 p. m. Eighteenth Annual Spring Inspection.

12th May, Thursday, 4:10 p. m. Lecture: Economic Plants. For High School and Junior High School pupils. Prof. R. H. Cheney.

19th May, Thursday, 4:10 p. m. Lecture: Plant Breeding. For High School and Junior High School pupils. Prof. R. C. Benedict.

26th May, Thursday, 4:10 p. m. Lecture: Evolution. For High School and Junior High School pupils. Prof. R. C. Benedict.

30th May, Monday. Decoration Day. Holiday.

3rd June, Friday, 3:30 p. m. Iris Day Exercises. For members of the Garden.

10th June, Friday, 3:30 p. m. Rose Garden Day Exercises. For members of the Garden.

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BROOKLYN BOTANIC GARDEN

LEAFLETS

SERIES XX

BROOKLYN, N. Y., MAY 11, 1932

No. 4

THE GENUS *PRUNUS* (CHERRIES, PLUMS, ETC.) IN THE BROOKLYN BOTANIC GARDEN

About forty species of *Prunus* and also thirty varieties or hybrids of the Japanese flowering cherries are now growing in the Brooklyn Botanic Garden. The total number of species known to exist is between 150 and 200, the exact number depending on the degree of subdivision carried out in the classification. The species fall into five subgenera: plums and apricots (*Prunophora*), the almond-peach group (*Amygdalus*), true cherries (*Cerasus*), racemose cherries (*Padus*), and the cherry-laurels (*Laurocerasus*).

AMERICAN PLUMS

P. maritima (Beach Plum). A bush on sand dunes along the coast from Southern Maine to Virginia. The plums vary from sweet to somewhat resinous; they are used chiefly for jelly. So valuable has this bush become that some landowners spray the wild bushes as they would cultivated shrubs. (L)*

P. americana. The common wild plum of woodland borders from New York westward, the source of several cultivated varieties. It may form a tree 30 ft. high. (S)

P. hortulana. A small spineless tree, from Illinois and Missouri, with light yellow to red fruit. (S)

P. pumila (Sand Plum). Small prostrate to semi-erect shrubs of river gravels and sand plains, chiefly northward and in the Great Lakes region. Three distinct species are included under this name. The fruit varies greatly as to edible qualities. (S)

* (S): Systematic section, west of main conservatory.

(L): Local flora section, north of rose garden.

(F): Flowering tree section, east of esplanade.

(N): Nursery.

AMERICAN CHERRIES

P. pennsylvanica (Bird Cherry, Pin Cherry). A small short-lived tree of burned-over woods in the northern states, becoming a larger permanent tree in the southern mountains. The bright, red cherries are very small and sour, but are used for jelly. (L)

P. serotina (Black Cherry, Rum Cherry). The common wild cherry of the New York region, becoming a tree up to a hundred feet in height. The wood is used for furniture making; the purplish fruit has a pleasant, somewhat bitter taste. A popular medicine was made by pouring rum on the cherries, and allowing the mixture to age. (L)

P. virginiana (Choke Cherry). A shrub, sometimes a small tree, common along fences and in rocky woods, with leaves broader and softer than those of the black cherry. The dull, red fruit has a puckery taste, but is used for making jelly. (L)

OLD WORLD PLUMS

P. spinosa (Blackthorn). Spiny shrub from Europe and Western Asia, with white flowers before the leaves. (S)

P. cerasifera (Cherry Plum). A small tree from Western Asia with small, white flowers borne singly. The variety *Pissartii* has purple leaves and pink flowers. (S)

P. salicina. A small Chinese tree with abundant fruit, long keeping, though not of the best quality. (S)

P. Simonii (Apricot Plum). A narrow upright tree from North China with conspicuous fruit. (S)

APRICOTS

P. Armeniaca (Apricot). A Western Asiatic tree, long cultivated for its fruit. Flowers pink, bark reddish. (S)

P. Mume (Japanese Apricot). Much like the preceding, flowers larger but the fruit has no value; the bark greenish or gray. (F)

ALMONDS AND PEACHES

P. communis (*Amygdalus*, Almond). A Western Asiatic species with showy pink flowers. The fruit splits open when mature and exposes the stone or almond. (N)

P. nana (Dwarf Persian Almond). A hardy small shrub from Russia and Western Asia. It grows from 3-5 ft. tall; flowers showy, white to red; fruit edible. (N)

P. Persica (Peach). A small Chinese tree with showy pink flowers, cultivated mainly for its fruit, but has many horticultural forms. (S)

P. triloba (Flowering Plum). A Chinese shrub widely known as Flowering Almond. The slender branches densely packed with double pink flowers, resembling roses. (S)

EUROPEAN TRUE CHERRIES (CERASUS)

P. avium (Mazzard). Tall tree with white flowers; parent form of sweet cherries. (North of Rock Garden). There is a double flowered form that opens about a week later. (F)

P. Cerasus (Sour Cherry). Smaller tree than *P. avium* with smaller and thicker leaves and less conspicuous flowers. Parent of the Morel Cherry. (N)

ASIATIC TRUE CHERRIES (CERASUS)

The following three species have sepals bent back, or reflexed, like the two preceding species.

P. Mahaleb. A slender tree with nearly round leaves and fragrant white flowers in short racemes. Used as grafting stock for cherries. (N)

P. pilosiuscula. A low tree from Central and Western China; abundant pink flowers. (S)

P. Maximowiczii. A tree from N. China and Japan, flowers white; foliage turns red in autumn. (S)

P. tomentosa (Nankin Cherry). A shrub from northeastern Asia. Very hardy, slender branches covered with very early white flowers. Fruit small, red. (S)

P. glandulosa (Flowering Almond). Shrub from China and Japan with white or pink flowers; also double forms. (S)

P. incisa (Mt. Fuji Cherry). A hardy bush or small tree with pure white flowers. The calyx becomes red after the petals fall. (F)

P. subhirtella. Tree from Western Japan with pink flowers which last a long time. (S & F)

P. Conradinae. A small tree from Central China. Flowers light pink, the earliest of all the cherries. (S)

P. Lannesiana. Small Japanese tree with fragrant flowers white or pink. Considered to be the parent of most of the double flowered Japanese cherries. (F)

P. serrulata. A large tree from China and Japan with white flowers not fragrant. This tree and its varieties are among the most handsome of all the cherries. Our "Cherry Walk" west of the esplanade is *serrulata* var. *fugenzo* (also called James Veitch). (F)

P. yedoensis (Yoshino or Tokyo Cherry). Small tree, probably a hybrid between *Lannesiana* and *subhirtella*. In Japan the flowering of this cherry is made a national holiday. In 1912 the City of Tokyo presented about 2,000 cherry trees to Washington, D. C.; about half of these were *P. yedoensis*. (F)

P. Sieboldii. Small tree from China and Japan. Flowers pink, double, though occasionally white and single. (F)

OLD WORLD RACEMOSE CHERRIES (PADUS)

P. Padus (European Bird Cherry). An Old World species resembling our native Choke Cherry, but with fragrant and larger flowers. (S)

P. Maackii. A tree to about 50 ft. from Central and Northern China. It has orange or yellow flaky bark and white flowers in short upright racemes. (N)

CHERRY—LAUREL

P. Laurocerasus. Handsome large-leaved evergreen shrub or small tree from the Eastern Mediterranean region. (S)

ALFRED GUNDERSEN

CHARLES F. DONEY

BROOKLYN BOTANIC GARDEN

LEAFLETS

SERIES XX

BROOKLYN, N. Y., JUNE 22, 1932

No. 5

JUNE AND JULY IN YOUR GARDEN

Many dahlia growers prefer to postpone their planting of dahlia tubers until well into June. The idea back of this is that dahlias so planted grow right along, whereas those that are planted earlier may suffer a check brought about by excessive heat and drought during the time when they should be most actively growing. The dahlia clumps should be divided before they are set out. Cut them, if possible, in such a way that there is one growing point to each division. When planting them, a hole should be dug six inches deep and the tuber put in place, laying the tuber horizontally. Cover temporarily with about two inches of soil and fill in the remainder after the shoot is well above the ground. When the shoots are six or eight inches above the ground-line, the tips should be pinched out in order to promote branching.

Dahlia Planting.

In the rose garden, routine work consists of dusting the plants with Massey Dust for the control of mildew, Black Spot, and leaf-eating insects. The frequency of application will depend largely on weather conditions. Endeavor should be made to have the plants covered with dust before rainy periods.

Care of Roses.

A sharp look-out should be kept for suckers arising from the stock on which the garden roses are budded. Such suckers should be removed as soon as their presence is discovered, because, if left to grow, they are likely to quickly crowd out the rose which they are expected to support. Shoots arising from the stock may be distinguished by the fact that the leaves have a larger number of leaflets than those of the scion. Also the leaflets are, in general, smaller.

Rambler roses should be pruned immediately after they have finished flowering. Pruning consists in cutting off at the ground line all canes which have blossomed. Dorothy Perkins, Excelsa, and Hiawatha are examples of roses belonging in the rambler group. It should be clearly understood that there is a difference between roses in the *rambler* group, both in their habit of growth and in the method of pruning, and roses like Dr. Van Fleet, Silver Moon, and American Pillar, for which the name *climber* has been suggested. Roses in the latter group make permanent woody stems, and summer pruning

consists merely of shortening back the laterals which have produced blossoms. It is unfortunate that the term *rambler* is often applied to all roses of a more or less scrambling nature. As has been pointed out by Mr. G. H. Nicolas, these roses could, with advantage, be divided into three classes for which he suggests the names Climber, Rambler, and Pillar. The last term might be applied to roses with a less rampant habit of growth, suitable for training on pillars.

Watch out for aphid attacks on roses and other plants. When an infestation is discovered, get busy right away and do not wait until you have a million or more to kill. Aphids may be controlled by spraying with nicotine soap solution, or by dusting them with nicotine-impregnated dust.

Keep a close watch for evidence of red spider on evergreens and other plants. These are mite-like creatures barely visible to the naked eye, which, however, may cause considerable damage. The leaves of infested plants become grayish or brownish in color and spotted in appearance, and on close examination one is usually able to find minute webs on the leaves with the mites busily at work. Dusting the plants with dusting sulphur is recommended as a control measure, or recourse may be had to one of the many proprietary insecticides which claim to kill red spider.

Seeds of perennials may be sown during June and July. Seedlings started during these months will, in most cases, make good plants for **Sowing Perennials,** setting out in their permanent positions in the fall. **Planting,** If a cold frame is available, the seeds may, with advantage, be planted in it. Of course, first provide **Watering, etc.** six or eight inches of fine soil in which to plant the seeds. The seed bed should be located near a supply of water so that the seeds and seedlings may be watered whenever they need it.

Gladiolus corms may be planted for a succession of bloom up to about the middle of July. Annual seedlings raised from broadcast seeds should be thinned as occasion demands, as recommended in a previous LEAFLET.

Chrysanthemums that have been set out as plants raised from cuttings should have the growing point pinched out to promote bushiness, if that is desired. The same remarks apply to cosmos and other annuals if a bushy habit is desired. During periods of drought, pay particular attention, as far as watering is concerned, to newly set-out trees, shrubs, and perennials. These newly transplanted plants have a less extensive root system, of course, than those that are thoroughly established, and because of this are less able to take care of themselves during droughty periods. When watering is done, it should be done thoroughly so that the ground is wet for a considerable depth. This will encourage the roots to go downward in search of water, which is an advantage, as roots thus placed are less liable to injury during hot, dry, sunny weather.

Fertilize the lawn early in June, paying particular attention to patches where the grass appears to be starved. If using concentrated commercial fertilizers exercise caution in applying them. Put them on when the grass is dry and if possible follow up with a thorough watering. Do not use in greater amount than that recommended by the manufacturer and be careful to apply evenly. If these precautions are not observed "burnt" areas in the lawn may be the result.

The Lawn.

Woody plants with a habit of growth that permits bending a branch or branches down to the ground may be propagated by "layering." Cut a longitudinal slit one-third of the way through the stem and about two inches long, one or two feet from the tip of the branch, and on its under side. Bend the branch to the ground and at the point where the "slit" touches the earth, dig a shallow depression. Place the slit portion in this, cover with earth and hold the branch in place with a stone or peg. Roots will be formed in the vicinity of the "slit" (usually by the following spring) and the layer may then be severed from the parent plant, dug up and transplanted to a new location.

Layering.

Hedges should be clipped as often as they need it during the growing season. In snapping a hedge, be careful to make the top narrower than the base. Otherwise, if the reverse is the case, the hedge is likely to become thin at the bottom due to lack of light.

Miscellaneous Suggestions.

Keep busy with the hoe to cultivate the soil and keep down weeds.

The blossoming period of annuals may be prolonged if they are not permitted to form seeds. Therefore cut off dead flowers so far as is practicable. This advice applies particularly to Sweet Peas, which quickly cease growth and blossoming when they have formed seeds. Feeding these plants, either with liquid manure or by mulching the surface with decayed manure followed by a thorough watering is also of service in prolonging their flowering period.

Cut down Delphiniums after they are through blooming so as to encourage them to produce a second crop later in the season. When the new growth starts it is desirable to help it along by giving the plants a little fertilizer.

Keep a note book handy in your garden pilgrimages so that you may jot down cases of color disharmony, height and growth discrepancies, etc., with a view to rectifying matters in the fall or spring when transplanting may be carried out with greater assurance of success.

MONTAGUE FREE.

NOTICES

The Garden is open free to the public daily, from 8 a. m. until dark; on Sundays and holidays from 10 a. m. until dark. The Laboratory Building, containing the Library, Herbarium, and offices, is open daily (except Sundays), from 9 a. m. until 5 p. m. (Saturdays, 9-12). The Conservatories are open April 1-September 30, 10 a. m.-4:30 p. m. (Sundays, 2-4:30); October 1-March 31, 10 a. m.-4 p. m. (Sundays, 2-4). **The Japanese Garden** is open, beginning on May 11, every weekday from 11 a. m. until dusk; on Sundays and holidays from 1 p. m. until dusk. **The Rose Garden** is open from 9 a. m. to 5 p. m. on weekdays. It is closed on Sundays and holidays.

The Garden may be reached in the following ways: Flatbush Avenue trolley to Empire Boulevard; Franklin Avenue or Lorimer Street trolleys to Flatbush Avenue; St. John's Place trolley to Sterling Place and Washington Avenue; Ninth Avenue, Union Street, Vanderbilt Avenue, or Smith Street trolleys to Grand Army Plaza and Union Street; Brighton Beach Express, Broadway (B.M.T.) Subway to Prospect Park (north exit). From Pennsylvania Station, Manhattan, take Broadway-Seventh Avenue Subway to Eastern Parkway-Brooklyn Museum Station. From Grand Central Station, Manhattan, take Lexington Avenue Subway, changing at Nevins Street, Brooklyn, to Broadway-Seventh Avenue Subway, getting off at Eastern Parkway-Brooklyn Museum Station. **By Automobile** from points on Long Island, take Eastern Parkway and turn left at Washington Avenue; from Manhattan, take Manhattan Bridge, follow Flatbush Avenue Extension and Flatbush Avenue to Eastern Parkway, turn left following Parkway to Washington Avenue; then turn right.

Entrances—On Flatbush Avenue (1) near Empire Boulevard, and (2) near Mt. Prospect Reservoir; on Washington Avenue, (3) south of Eastern Parkway, and (4) near Empire Boulevard; on Eastern Parkway, (5) west of the Museum building.

The Street entrance to the Laboratory Building is at 1000 Washington Avenue, between Eastern Parkway and Empire Boulevard and opposite Crown Street.

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Telephone: Prospect 9-6173. Mail address: Brooklyn Botanic Garden, 1000 Washington Avenue, Brooklyn, N. Y.

BROOKLYN BOTANIC GARDEN

LEAFLETS

SERIES XX

BROOKLYN, N. Y., OCTOBER 19, 1932

No. 6

OCTOBER IN YOUR GARDEN

Spring flowering bulbs must be planted in the fall, and October is a good month for planting. One of the easiest ways to get results in beauty of form and brilliancy of color in the spring garden is to plant these bulbs. They are not entirely fool-proof, but by following a few simple rules, one is almost certain to achieve splendid results.

**Plant Spring
Flowering Bulbs.
Suggestions for
Best Results.**

First, as to soil. For the majority of bulbs it must be well drained. In other words, do not plant them in a mud puddle and expect to get results. Bulbs prefer a rich sandy loam, but they must not be planted in such a way that they come in contact with manure, more particularly, fresh manure. To my mind, the ideal way of fertilizing for bulbs is to manure heavily the spring preceding the fall in which they are planted. If this is not possible, use thoroughly decayed manure, burying it in such a way that the roots of the bulbs have to reach after it. If decayed manure is not available, use bone meal at the rate of 12 lbs. to 400 square feet, and mix it thoroughly with the upper foot of soil.

The second factor deals with the time of planting. This, of course, will vary with the location, and no hard and fast rule can be laid down. The bulbs should not be planted earlier than six weeks before constant cold weather is expected. They may be planted up until the time the surface of the soil is frozen, although generally it is better not to wait so late in the season.

The depth of planting varies with the type and size of the bulb in question. A good general rule to follow is to cover the bulbs with soil equal in depth to twice the diameter or length of the bulb, whichever is the larger. Too deep a planting is better than one that is too shallow, however. Small bulbs, such as Glory-of-the-Snow and Snowdrops, have been known to successfully emerge when they have been planted a foot deep, but a planting of this depth is not recommended. When the soil is very heavy the bulbs should be a little nearer the surface. In light, sandy soils, a deeper planting is an advantage.

In the actual planting of the bulbs, you may use one of several methods. A very common way of getting them into the ground is by the use of a dibber. This is a quick method, but it has the dis-

advantage of being difficult to gauge the depth at which you are setting the bulbs, and large bulbs are likely to be nearer the surface than the smaller ones, whereas, if anything, the reverse should be the case. Still another method that is somewhat laborious is to remove the correct depth of soil from the area to be planted, put the bulbs in place and then return the soil. This is an excellent method as all the bulbs may be planted at the same depth and it is very easy to get them at the correct distance apart. Furthermore, by spreading manure and digging it in after the top soil has been removed, one is able to get the manure well below the bases of the bulbs. Making the holes by means of a trowel is an excellent way to get your bulbs in the ground, especially if the soil has been properly prepared beforehand and is in a friable condition. When naturalizing bulbs in grass, the best means of planting them is to force a mattock into the ground, pry up the sod, put the bulb or bulbs in place and then replace the sod. It is very difficult to avoid planting the bulbs in such a way that they do not look artificially planted when they come up. As an aid in obtaining a natural looking planting, it is a good plan to throw the bulbs on the ground and plant them where they fall, of course taking care that they are not too far apart or too close together.

For formal planting, formal types such as Hyacinth, Tulip, and Crocuses are most appropriate and, in choosing the varieties, pick the kinds that blossom and mature early so that they may be removed from the beds when the time comes for setting out the summer bedding plants. In the perennial garden, the May flowering tulips—Darwins, Cottage, Breeder, and Parrot, etc.—should be used, because such kinds are more or less permanent and may be left in the ground year after year. The same is true of Narcissus.

For naturalizing, Narcissus of various types—the Trumpet, *Incomparabilis*, and *Poeticus*—are excellent. The *Incomparabilis* kinds will thrive in partial shade if it is not too dense. Another excellent plant for naturalizing, although, strictly speaking, it is not a bulb, but a tuber, is the Winter Aconite. This is one of the earliest plants to come into bloom and thrives well in the shade. Crocuses, too, may be used very effectively in natural plantings, but when these and other bulbs are planted in the lawn or in grass it should be remembered that the grass cannot be cut until the foliage of the bulbs has died down—that is, if you expect the bulbs to produce flowers the following year.

Varieties, of course, are largely a matter of personal preference. The ideal method of making a planting list is to visit a named collection of bulbs in the spring when they are in bloom, listing those that are particularly attractive. This means a wait of one year, but it is better to have the delay than to rely upon unauthentic recommendations or to try to pick varieties from catalogued descriptions. When the plants are seen actually growing it is possible to form a clear conception of their color, height, habit, and time of blossoming,

matters that are very important when bulbs in combination are used in the garden. Flower lovers in the metropolitan area have easy access to the Brooklyn Botanic Garden, where bulbs are featured. Some of the large seed houses maintain labelled display collections, too, and some gardeners are fortunate enough to have friends with a large variety of named bulbs. If you did not take any notes last spring, get a bulb catalogue and make your selection from it now, or button-hole someone with a knowledge of flowers who will give you the necessary information. Next spring, if possible, visit a large collection.

After the bulbs are planted, they will need no further attention until the ground has frozen to a depth of about one inch. Then the surface should be mulched with four or five inches of light material, such a strawy manure or partly decayed leaves. The function of this mulch is to prevent alternate freezing and thawing of bulbs. Most of the mulch must, of course, be removed in the spring before the bulbs break through the ground. It is better to do this work gradually, not taking off the whole of the mulch at one time. One point in the cultivation of bulbs that it might be well to emphasize at this time is that their foliage must not be removed until it has entirely turned yellow. Food is manufactured by the leaves and stored up in the bulb. If the leaves are removed before they have performed this function, the bulbs will be weak and flowerless the following season.

House plants that have spent the summer out of doors, planted in the garden, should be dug up with as little root disturbance as possible and potted up. Use pots large enough to hold the roots without undue crowding but try to avoid the appearance of more pot than plant. It is well to pot these plants rather early in the month so that they may become established in their new environment before artificial heat is used in the dwelling. The combination of dryness of atmosphere that is the usual concomitant of artificial heating, *plus* the shock to the plant occasioned by transplanting often proves fatal.

Geraniums may be dug up for use as stock plants to provide cuttings, or to be stored over winter for planting out next spring. If intended for the purpose of providing cuttings the plants should be severely cut back and firmly potted, afterwards keeping the plants in the sunniest position available. Plants to be stored should have the tips of the shoots cut off (which, if desired, may be inserted as cuttings) and then be packed in shallow boxes, with moist earth over their roots and placed in the coolest part of the cellar: a temperature between 35° and 40° is best for them. One hears stories of how "mother used to carry over her geraniums by tying them in bundles and suspending them from the cellar rafters," but I'm afraid the modern cellar with its heating plant and concrete floor does not permit success by this method.

Treatment of House Plants.

Geraniums for Future Use.

Summer flowering bulbs, corms, and tuberous rooted plants that are not winter hardy should be dug up when the frost has blackened their foliage. Dahlias, Four-o'clocks, Madeira vine, Tuberose, and Elephant's-ear, may be placed in boxes with dry sand or peat moss about them and stored in a cool, dry place where the temperature does not fall below 35°. Cannas should be dug up, not attempting to remove the soil that adheres to their roots, packed closely in shallow boxes and stored in a temperature of between 40° and 50°, preferably in a somewhat moist atmosphere. Gladiolus corms should have their tops (leaves) removed, and, after they have thoroughly dried, be freed from the old corms and loose scales and stored in a cool dry place. If they are infested with the dreaded gladiolous thrips, be careful to burn tops and trash removed from the corms and expose the latter to fumes from naphthalene flakes for three or four weeks. Place the corms in paper bags and sprinkle with naphthalene flakes, using 1 oz. to 100 corms.

Dig Up Summer Flowering Bulbs. Towards the end of the month, seeds of hardy annuals such as Shirley and California Poppies, Corn-flower, and Sweet Alyssum may be planted in the position where they are to bloom. First prepare the soil by digging deeply and mixing in it well decayed manure. Mark the spots where the seeds are sown so that the soil may not be dug up again in the spring.

Miscellaneous Suggestions. The soil in October is usually in good condition for planting and transplanting hardy, deciduous trees and shrubs. When planting, make the soil firm about the roots by tramping, provide a support if the tree is of a nature that it is likely to be loosened by winter winds, water if the soil is dry, and don't forget to prune the top to compensate for unavoidable root injury.

Now is a desirable time to replant the herbaceous border. Dig the soil deeply, mixing decayed manure and bone meal with it. Crowded clumps should be dug up, divided, and reset, using the strongest divisions from the periphery of the clump.

This has been an exceptionally dry summer and in spite of recent rains the ground in many sections is still dry. Make sure, by watering, that your plants, particularly evergreens, do not go into the winter dry at the roots.

Keep the garden tidy by removing dead tops from perennials. If you suspect that they may be infested with disease or insects, burn them—if not they may go on the compost pile. Tree leaves should be gathered and stored in a heap, or in a packing case, in an out-of-the-way part of the garden to rot down for humus.

Keep the lawn mowed as long as the grass keeps growing. The lawn mower should be set to cut a little higher than usual so that the grass is not too short when winter sets in. If it has not already been done, do not delay reseeding of bare spots.

MONTAGUE FREE.





